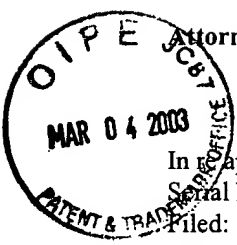


03-06-03

AF  
3700



Attorney's Docket No. 67,200-262

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Hsu et al  
Serial No.: 09/ 588,788

Group Art Unit: 3729  
Examiner: Anthony D. Tugbang

Filed: June 6, 2000  
For: Planar Spiral Inductor Structure Having Enhanced Q Value

Assistant Commissioner for Patents  
Washington, D.C. 20231

TRANSMITTAL OF APPEAL BRIEF (PATENT APPLICATION-37 CFR 192)

- 1. Transmitted herewith, in triplicate, is the APPEAL BRIEF in this application, with respect to the Notice of Appeal Filed on January 17, 2003.

NOTE: "The Appellant shall, within 2 months from the date of the notice of appeal under §1.191(a) or within the time allowed for response to the action appealed from, if such time is later, file a brief in "triplicate", 37 C.F.R. 1.192(a) [emphasis added].

- 2. STATUS OF APPLICANT

This application is on behalf of:  
  X   other than a small entity.  
     a small entity.

A verified statement:  
     is attached.  
     was already filed.

RECEIVED  
MAR 11 2003

TECHNOLOGY CENTER R3700

- 3. FEE FOR FILING APPEAL BRIEF

Pursuant to 37 CFR 1.17(f), the fee for filing the Appeal Brief is:

<u>    </u> small entity	\$160.00
<u>  X  </u> other than a small entity	\$320.00

Appeal Brief fee due: \$ 320.00

Certificate of Mailing/Transmission (37 CFR 1.8(a))

I hereby certify that this correspondence is, on the date shown below, being:

Mailing  
X deposited with the U.S. Postal Service  
with sufficient postage as Express Mail  
Label No. EV 211 301 466 US  
in an envelope addressed to Box Appeal,  
Assistant Commissioner for Patents,  
Washington, D.C. 20231

Kathy Dixon

Dated: March 4, 2003

4. EXTENSION OF TERM

NOTE: The time periods set forth in 37 CFR 1.192(a) are subject to the provision of ☐ 1.136 for patent applications. 37 CFR 1.191(d). See also Notice of November 5, 1985 (1060 O.G. 27).

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136 apply:

(complete (a) or (b), as applicable)

- (a) ☐ Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d) for the total number of months checked below:

	Extension (months)	Fee for other than small entity	Fee for small entity
<input type="checkbox"/>	one month	\$ 110.00	\$ 55.00
<input type="checkbox"/>	two months	\$ 390.00	\$195.00
<input type="checkbox"/>	three months	\$ 930.00	\$465.00
<input type="checkbox"/>	four months	\$1,470.00	\$735.00

Fee: \$ \_\_\_\_\_

If an additional extension of time is required, please consider this a petition therefor.

(check and complete the next item, if applicable)

- ☐ An extension for \_\_\_\_\_ months has already been secured, and the fee paid therefor of \$ \_\_\_\_\_ is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request: \$ \_\_\_\_\_

or

- (b) ☐ Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

5. TOTAL FEE DUE

The total fee due is:

Appeal Brief Fee: \$ 320.00  
Extension fee (if any) \$ \_\_\_\_\_

TOTAL FEE DUE: \$ 320.00

6. FEE PAYMENT

X Attached is a Credit Card Payment Form for the sum of \$ 320.00  
X Charge Visa Credit Card No. 4756 8461 9568 0263 the sum of \$ 320.00.  
A duplicate copy of this transmittal is attached.

7. FEE DEFICIENCY

NOTE: If there is a fee deficiency and there is no authorization to charge an account, additional fees are necessary to cover the additional time consumed in making up the original deficiency. If the maximum six-month period has expired before the deficiency is noted and corrected, the application is held abandoned. In those instances where authorization to charge is included, processing delays are encountered in returning the papers to the PTO Finance Branch in order to apply these charges prior to action on the cases. Authorization to charge the deposit account for any fee deficiency should be checked. See the Notice of April 7, 1986, 1065 O.G. 31-33.

  X   If any additional extension and/or fee is required, this is a request therefor  
to charge Visa Credit Card No. 4756 8461 9568 0263

And/Or

  X   If any additional fee for claims is required, please charge Visa Credit Card  
No. 4756 8461 9568 0263

A handwritten signature in black ink, appearing to be 'Randy W. Tung', written over a horizontal line.

Signature of Attorney

Registration No. 31,311

Randy W. Tung

Telephone: (248) 540-4040

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Bloomfield Hills, Michigan 48302



67,200-262; TSMC 99-545  
Serial No. 09/588,788

#13/Brief

\*(3 copies)

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPEAL BRIEF

2003-11-23

TO: Assistant Commissioner for Patents  
Washington, D.C. 20231

RECEIVED

FROM: Tung & Associates  
838 West Long Lake Road - Suite 120  
Bloomfield Hills, MI 48302

MAR 11 2003

TECHNOLOGY CENTER R3700

DATE: 28 February 2003

REF: Applicant : Hsu et al Filing Date : 6 June 2000  
Serial No. : 09/588,788 Att'y No. : 67,200-262; TSMC 99-545  
Art Unit : 3729 Examiner : Anthony D. Tugbang  
Title : Planar Spiral Inductor Structure Having Enhanced Q Value

EXPRESS MAIL CERTIFICATE

"Express Mail" label number EV 211 301 466US  
Date of Deposit March 4, 2003

I hereby certify that this paper in triplicate and a credit card payment form in the amount of \$320.00 (required filing fee) are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR §1.10 on the date indicated above and is addressed to: Box Appeal, Assistant Commissioner for Patents, Washington, D.C. 20231

Kathy Dixon

APPEAL BRIEF

Sir:

In response to rejection of the claims in the above referenced application for United States Patent in an Office communication action mailed 19 November 2002 and made FINAL, applicant filed a notice of appeal on 17 January 2003. In accord with applicant's notice of appeal, please accept this appeal brief. No oral argument is requested.

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1. Real Party in Interest

The real party in interest for this application is the assignee:

Taiwan Semiconductor Manufacturing Co., Ltd.  
121 Park Avenue, No. 3  
Science Based Industrial Park  
Hsin-Chu, Taiwan, Republic of China

An assignment has been recorded for this United States Patent application.

2. Related Appeals and Interferences

There are no related appeals or interferences for this United States Patent application.

3. Status of the Claims

Claims 1-8 are pending in this application. Claims 9-15 have been canceled incident to a restriction requirement. Claims 1-8 are finally rejected under 35 U.S.C. § 102(b). No claims are allowed or objected to.

4. Status of the Amendments

An amendment and response, filed 11 December 2002, was submitted in response to the Office communication made FINAL, in order to overcome the Examiner's rejections of the claims pending within this application. In an advisory action mailed on 19 December 2002, the Examiner indicated that applicant's response was considered but did not place applicant's application in condition for allowance. Applicant's proposed amendments were not entered since they: (1) raised new issues; and (2) did not materially reduce or simplify the issues for appeal.

5. Summary of the Invention

The present invention provides a method for fabricating a microelectronic inductor structure within a microelectronic fabrication, as well as the microelectronic inductor structure fabricated within the microelectronic fabrication while employing the method. The microelectronic inductor structure is fabricated with optimal properties, as characterized by an enhanced Q value of the microelectronic inductor structure. (page 6, first paragraph)

The present invention realizes the foregoing object by employing when fabricating a planar spiral inductor structure in accord with the present invention a spirally patterned conductor layer employed for forming the planar spiral inductor. A successive series of spirals within the spirally patterned conductor layer is formed with a variation in at least one of: (1) a series of linewidths of the successive series of spirals; and (2) a series of spacings separating the successive series of spirals. (page 6, first paragraph)

The invention is claimed in one level of scope that provides a method for fabricating an inductor structure (claim 1) and dependent limitations thereupon (claims 2-8).

Independent claim 1 is read on the specification and drawings as follows:

1. (amended) A method for fabricating an inductor structure comprising:

providing a substrate 10; (Fig. 1, Fig. 2; page 9, second full paragraph and page 12, second full paragraph)

forming over the substrate 10 a planar spiral conductor layer 12 to form a planar spiral inductor, wherein a successive series of spirals 12a/12b/12c/12d/12d'/12c'/12b'/12a' within the planar spiral conductor layer 12 is formed with a continuous variation in at least one of:

a series of linewidths LW1/LW2/LW3/LW4 of the successive series of spirals;  
and

a series of spacings separating the successive series of spirals. (Fig. 1; Fig. 2;  
page 9, second full paragraph to page 11, first partial paragraph; page 12, second full paragraph)

6. Issue

Whether claims 1-8 may properly be rejected under 35 U.S.C. § 102(b) as being  
anticipated by Esper et al. (U.S. Patent No. 4,613,843; hereinafter "Esper").

7. Grouping of Claims

Claims 1-8 are directed towards a first and only claimed embodiment of the  
invention.

The claims do not stand or fall together within their respective groups.

8. Argument

I. The claims do not stand or fall together within their respective groups.

Within claim 6 applicant claims a specific geometric characteristic of a series of  
spirals within applicant's planar spiral conductor layer. Beyond other patentably distinguishable  
features as disclosed below with respect to amended claim 1, applicant asserts and further  
discusses below that this geometric characteristic provides an additional basis for patentability of  
applicant's claim 6 over Esper in comparison with the remaining of applicant's claims to  
applicant's invention. Thus, applicant asserts that applicant's claims to applicant's invention do

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not stand or fall together and applicant respectfully requests additional independent consideration of applicant's claim 6.

II. Claims 1-8 may not properly be rejected under 35 U.S.C. § 102(b) as being anticipated by Esper.

a. Esper Subject Matter

Esper (abstract and Fig. 6) discloses an inductor structure related to applicant's inductor structure.

b. The Examiner's Assertions

Within the sentence bridging pages 2-3 of the office action made FINAL, the Examiner asserts that Esper in Fig. 6 discloses a planar spiral conductor layer (derived from Esper's top coil 91 and bottom coil 92) which forms a planar spiral inductor, wherein the planar spiral conductor layer is formed with a continuous variation of a series of linewidths of a successive series of spirals within the planar spiral conductor layer (in accord with applicant's invention as disclosed and claimed within amended claim 1).

c. Applicant's Response

In response, applicant respectfully disagrees with the Examiner's reading of Esper.

Rather, in a first instance, applicant understands that if Esper's top coil 91 and bottom coil 92 are considered in an aggregate to form a spiral conductor layer which forms a spiral inductor as suggested by the Examiner, the spiral inductor as suggested by the Examiner is



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not a planar spiral inductor in accord with applicant's invention as disclosed and claimed within amended claim 1, since Esper's top coil 91 and Esper's bottom coil 92 in an aggregate do not form a planar spiral conductor layer but rather a three dimensional bi-spiraled conductor layer.

In addition, in a second instance, applicant notes that Esper at col. 4, lines 15-16 clearly discloses a single specific linewidth (i.e., 4 microns) apparently for spirals within both Esper's top coil 91 and Esper's bottom coil 92. If Esper intended different linewidths for spirals within Esper's top coil 91 and Esper's bottom coil 92, Esper clearly would have provided a minimum of two specific linewidths, rather than a single specific linewidth, for spirals within Esper's top coil 91 and Esper's bottom coil 92.

Thus, since each and every limitation within applicant's invention as disclosed and claimed within amended claim 1 is not disclosed within Esper, particularly with respect to a planar spiral conductor layer being formed with a continuous variations of a series of linewidths of a series of successive spirals thereof to form a planar spiral inductor, applicant asserts that amended claim 1 may not properly be rejected under 35 U.S.C. § 102(b) as being anticipated by Esper.

Since all remaining claims within the foregoing rejection are dependent upon amended claim 1 and carry all of the limitations of amended claim 1, applicant additionally asserts that those remaining claims may also not properly be rejected under 35 U.S.C. § 102(b) as being anticipated by Esper.

As a related item, and as an adjunct with respect to claim 6, applicant notes that Esper's bottom coil 92 (Fig. 6) forms both an outermost spiral and an innermost spiral within

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Esper's spiral inductor. Thus, even if spirals within Esper's top coil 91 and Esper's bottom coil 92 were of different linewidth (which as noted above is unsupported within Esper), claim 6 is not anticipated by Esper since there exists no progression of linewidth of the series of spirals within Esper's inductor structure as is required within applicant's claim 6.

9. Summary

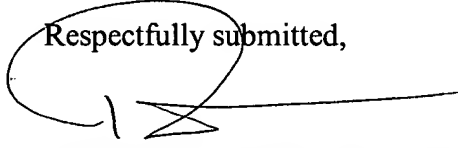
Applicant's invention as disclosed and claimed within amended claim 1 is directed towards a method for fabricating an inductor structure. The method employs a planar spiral conductor layer to form a planar spiral inductor, wherein a successive series of spirals within the planar spiral conductor layer is formed with a continuous variation in at least one of: (1) a series of linewidths of the successive series of spirals; and (2) a series of spacings separating the successive series of spirals.

Absent from the prior art of record employed in rejecting applicant's claims to applicant's invention is a disclosure of each and every limitation within applicant's invention.

10. Conclusion

Applicant requests that the Board of Patent Appeals and Interferences reverse the Examiner's action in rejecting the claims within this application within the Office communication made FINAL. Allowance of all claims remaining within this application, in accord with the appended copy of the claims, is respectfully requested.

Respectfully submitted,

  
Randy W. Tung (Reg. No. 31,311)

**APPENDIX  
COMPLETE COPY OF THE CLAIMS**

1. (amended) A method for fabricating an inductor structure comprising:  
  
    providing a substrate;  
  
    forming over the substrate a planar spiral conductor layer to form a planar spiral inductor,  
  
wherein a successive series of spirals within the planar spiral conductor layer is formed with a continuous variation in at least one of:  
  
        a series of linewidths of the successive series of spirals; and  
  
        a series of spacings separating the successive series of spirals.
2. The method of claim 1 wherein by employing within the successive series of spirals within the planar spiral conductor layer the variation in at least one of the series of linewidths of the successive series of spirals and the series of spacings separating the successive series of spirals, the planar spiral inductor is fabricated with an enhanced Q value.
3. The method of claim 1 wherein the substrate is employed within a microelectronic fabrication selected from the group consisting of integrated circuit microelectronic fabrications, ceramic substrate microelectronic fabrications, solar cell optoelectronic microelectronic fabrications, sensor image array optoelectronic microelectronic fabrications and display image array optoelectronic microelectronic fabrications.

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4. The method of claim 1 wherein the successive series of spirals is formed in a shape selected from the group consisting of a triangle, a square, a rectangle, a higher order polygon, a uniform ellipse, a non-uniform ellipse and a circle.
5. The method of claim 1 wherein the planar spiral conductor layer is formed of a conductor material selected from the group consisting of non-magnetic metal, non-magnetic metal alloy, magnetic metal, magnetic metal alloy, doped polysilicon and polycide conductor materials, and laminates thereof.
6. The method of claim 1 wherein the variation in the series of linewidths of the successive series of spirals is an increasing progression of linewidth from a first spiral which defines the center of the planar spiral inductor having a comparatively narrow linewidth to a final spiral which defines the perimeter of the planar spiral inductor having a comparatively wide linewidth.
7. The method of claim 6 wherein the comparatively narrow linewidth is from about 7 to about 10 microns and the comparatively wide line width is from about 17 to about 21 microns.
8. The method of claim 1 wherein the successive series of spirals comprises from about 1 to about 8 spirals.
9. - 15. (canceled)